

COMBINED DECLARATION AND POWER OF ATTORNEY  
FOR CONTINUATION-IN-PART APPLICATION

AS A BELOW-NAMED INVENTOR, I HEREBY DECLARE THAT:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if more than one name is listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: MAMMALIAN CHEMOKINES; RECEPTORS; REAGENTS; USES, the specification of which

X is attached hereto  
   was filed on

and assigned Serial No. and was amended on .

I HAVE REVIEWED AND UNDERSTAND THE CONTENTS OF THE ABOVE-IDENTIFIED SPECIFICATION, INCLUDING THE CLAIMS, AS AMENDED BY ANY AMENDMENT REFERRED TO ABOVE.

I acknowledge and understand that I am an individual who has a duty to disclose information which is material to the patentability of the claims of this application in accordance with Title 37, Code of Federal Regulations, §§ 1.56(a) and (b) which state:

"(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

- (i) Opposing an argument of unpatentability relied on by the Office, or
- (ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability."

I do not know and do not believe this invention was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to said application. This invention was not in public use or on sale in the United States of America more than one year prior to this application. This invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on any application filed by me or my legal representatives or assigns more than six months prior to this application.

I hereby claim priority benefits under Title 35, United States Code § 119(e)(1) of any United States provisional application(s) for patent as indicated below and have also identified below any application for patent on this invention having a filing date before that of the application for patent on which priority is claimed:

<u>Application No.</u>	<u>Date of Filing (day/month/year)</u>	<u>Priority Claimed</u>
60/053,693	July 25, 1997	Yes <u>X</u> No <u>  </u>

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) and (b) set forth above which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.: 09/122,585

Filing Date: July 24, 1998

Status (patented, pending, abandoned): pending

I hereby appoint the following attorneys and agents to prosecute that application and to transact all business in the Patent and Trademark Office connected therewith and to file, to prosecute and to transact all business in connection with all patent applications directed to the invention:

Roberta L. Robins, Reg. No. 33,208  
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Address all telephone calls to: Sheela Mohan-Peterson at (650) 852-9196.

This appointment, including the right to delegate this appointment, shall also apply to the same extent to any proceedings established by the Patent Cooperation Treaty.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signature: \_\_\_\_\_

Date \_\_\_\_\_

Full Name Inventor: Joseph A. Hedrick

Citizenship: US

Residence: US

Post Office Address: 52-08 Quail Ridge Drive, Plainsboro NJ 08536

Signature: \_\_\_\_\_

Date \_\_\_\_\_

Full Name Inventor: Bernhard Homey

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Signature: \_\_\_\_\_

Date \_\_\_\_\_

Full Name Inventor: Alain Vicari

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Signature: \_\_\_\_\_

Date \_\_\_\_\_

Full Name Inventor: Monica Zepeda

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Residence: US

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Signature: \_\_\_\_\_

Date \_\_\_\_\_

Full Name Inventor: Albert Zlotnik

Citizenship: US

Residence: US

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SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: Hedrick, Joseph A.  
Vicari, Alain P.  
Zlotnik, Albert
- (ii) TITLE OF INVENTION: Mammalian Chemokines; Receptors;  
Reagents; Uses
- (iii) NUMBER OF SEQUENCES: 10
- (iv) CORRESPONDENCE ADDRESS:
  - (A) ADDRESSEE: DNAX Research Institute
  - (B) STREET: 901 California Avenue
  - (C) CITY: Palo Alto
  - (D) STATE: California
  - (E) COUNTRY: USA
  - (F) ZIP: 94304-1104
- (v) COMPUTER READABLE FORM:
  - (A) MEDIUM TYPE: Floppy disk
  - (B) COMPUTER: IBM PC compatible
  - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
  - (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
  - (A) APPLICATION NUMBER: US
  - (B) FILING DATE: 24-JUL-1998
  - (C) CLASSIFICATION:
- (viii) ATTORNEY/AGENT INFORMATION:
  - (A) NAME: Ching, Edwin P.
  - (B) REGISTRATION NUMBER: 34,090
  - (C) REFERENCE/DOCKET NUMBER: DX0757
- (ix) TELECOMMUNICATION INFORMATION:
  - (A) TELEPHONE: (650)852-9196
  - (B) TELEFAX: (650)496-1200

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 179 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (ix) FEATURE:
  - (A) NAME/KEY: CDS
  - (B) LOCATION: 18..179

(x) PUBLICATION INFORMATION:

(H) DOCUMENT NUMBER: US 60/053,693

(I) FILING DATE: 25-JUL-1997

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GTTAAACCAC ACTATTC ATG CAA AAG GGT GTA GGG TTA CTG AGG ACA GTT	50
Met Gln Lys Gly Val Gly Leu Leu Arg Thr Val	
1 5 10	
CCC TTG GTA CCT TCA GTC TCT GGT CAG ATT GAC CTT TTG GTA CTG TGT	98
Pro Leu Val Pro Ser Val Ser Gly Gln Ile Asp Leu Leu Val Leu Cys	
15 20 25	
ATG TGT ATA AAA ACG ACT ACT CCT CAT ATA TTT ATT TCT GAT TAT AAG	146
Met Cys Ile Lys Thr Thr Pro His Ile Phe Ile Ser Asp Tyr Lys	
30 35 40	
ATA ATA TAT TCT GGA AAA CAC TGG AAA ATA CAT	179
Ile Ile Tyr Ser Gly Lys His Trp Lys Ile His	
45 50	

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 54 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Met Gln Lys Gly Val Gly Leu Leu Arg Thr Val Pro Leu Val Pro Ser	
1 5 10 15	
Val Ser Gly Gln Ile Asp Leu Leu Val Leu Cys Met Cys Ile Lys Thr	
20 25 30	
Thr Thr Pro His Ile Phe Ile Ser Asp Tyr Lys Ile Ile Tyr Ser Gly	
35 40 45	
Lys His Trp Lys Ile His	
50	

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1314 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

(A) NAME/KEY: CDS  
(B) LOCATION: 179..1171

(x) PUBLICATION INFORMATION:  
(H) DOCUMENT NUMBER: US 60/053,693  
(I) FILING DATE: 25-JUL-1997

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

GTCTAAAACA AAATACAACA TTTCTTAAAT ACACTGTTTC CAGAAAGAGC TATTTAAC	60
GAAGCAACTC AAAGATATCC CTTCGACAGA AGTGGAAAGTG CTGAAAATG CTCATCTCTC	120
ACACAGACTT TTGATGGACA GGAGTTCTA AGTATCATGC CTACCAACAA GCTGTAAA	178
ATG ATC ACC CTG AAC AAT CAA GAT CAA CCT GTC CCT TTT AAC AGC TCA Met Ile Thr Leu Asn Asn Gln Asp Gln Pro Val Pro Phe Asn Ser Ser	226
1 5 10 15	
CAT CCA GAT GAA TAC AAA ATT GCA GCC CTT GTC TTC TAT AGC TGT ATC His Pro Asp Glu Tyr Lys Ile Ala Ala Leu Val Phe Tyr Ser Cys Ile	274
20 25 30	
TTC ATA ATT GGA TTA TTT GTT AAC ATC ACT GCA TTA TGG GTT TTC AGT Phe Ile Ile Gly Leu Phe Val Asn Ile Thr Ala Leu Trp Val Phe Ser	322
35 40 45	
TGT ACC ACC AAG AAG AGA ACC ACG GTA ACC ATC TAT ATG ATG AAT GTG Cys Thr Thr Lys Lys Arg Thr Thr Val Thr Ile Tyr Met Met Asn Val	370
50 55 60	
GCA TTA GTG GAC TTG ATA TTT ATA ATG ACT TTA CCC TTT CGA ATG TTT Ala Leu Val Asp Leu Ile Phe Ile Met Thr Leu Pro Phe Arg Met Phe	418
65 70 75 80	
TAT TAT GCA AAA GAT GCA TGG CCA TTT GGA GAG TAC TTC TGC CAG ATT Tyr Tyr Ala Lys Asp Ala Trp Pro Phe Gly Glu Tyr Phe Cys Gln Ile	466
85 90 95	
ATT GGA GCT CTC ACA GTG TTT TAC CCA AGC ATT GCT TTA TGG CTT CTT Ile Gly Ala Leu Thr Val Phe Tyr Pro Ser Ile Ala Leu Trp Leu Leu	514
100 105 110	
GCC TTT ATT AGT GCT GAC AGA TAC ATG GCC ATT GTA CAG CCG AAG TAC Ala Phe Ile Ser Ala Asp Arg Tyr Met Ala Ile Val Gln Pro Lys Tyr	562
115 120 125	
GCC AAA GAA CTT AAA AAC ACG TGC AAA GCC GTG CTG GCG TGT GTG GGA Ala Lys Glu Leu Lys Asn Thr Cys Lys Ala Val Leu Ala Cys Val Gly	610
130 135 140	
GTC TGG ATA ATG ACC CTG ACC ACG ACC ACC CCT CTG CTA CTG CTC TAT Val Trp Ile Met Thr Leu Thr Thr Thr Pro Leu Leu Leu Tyr	658
145 150 155 160	
AAA GAC CCA GAT AAA GAC TCC ACT CCC GCC ACC TGC CTC AAG ATT TCT Lys Asp Pro Asp Lys Asp Ser Thr Pro Ala Thr Cys Leu Lys Ile Ser	706
165 170 175	

GAC ATC ATC TAT CTA AAA GCT GTG AAC GTG CTG AAC CTC ACT CGA CTG Asp Ile Ile Tyr Leu Lys Ala Val Asn Val Leu Asn Leu Thr Arg Leu 180	185	190	754
ACA TTT TTT TTC TTG ATT CCT TTG TTC ATC ATG ATT GGG TGC TAC TTG Thr Phe Phe Leu Ile Pro Leu Phe Ile Met Ile Gly Cys Tyr Leu 195	200	205	802
GTC ATT ATT CAT AAT CTC CTT CAC GGC AGG ACG TCT AAG CTG AAA CCC Val Ile Ile His Asn Leu Leu His Gly Arg Thr Ser Lys Leu Lys Pro 210	215	220	850
AAA GTC AAG GAG AAG TCC ATA AGG ATC ATC ATC ACG CTG CTG GTG CAG Lys Val Lys Glu Lys Ser Ile Arg Ile Ile Ile Thr Leu Leu Val Gln 225	230	235	240
GTG CTC GTC TGC TTT ATG CCC TTC CAC ATC TGT TTC GCT TTC CTG ATG Val Leu Val Cys Phe Met Pro Phe His Ile Cys Phe Ala Phe Leu Met 245	250	255	946
CTG GGA ACG GGG GAG AAC AGT TAC AAT CCC TGG GGA GCC TTT ACC ACC Leu Gly Thr Gly Glu Asn Ser Tyr Asn Pro Trp Gly Ala Phe Thr Thr 260	265	270	994
TTC CTC ATG AAC CTC AGC ACG TGT CTG GAT GTG ATT CTC TAC TAC ATC Phe Leu Met Asn Leu Ser Thr Cys Leu Asp Val Ile Leu Tyr Tyr Ile 275	280	285	1042
GTT TCA AAA CAA TTT CAG GCT CGA GTC ATT AGT GTC ATG CTA TAC CGT Val Ser Lys Gln Phe Gln Ala Arg Val Ile Ser Val Met Leu Tyr Arg 290	295	300	1090
AAT TAC CTT CGA AGC ATG CGC AGA AAA AGT TTC CGA TCT GGT AGT CTA Asn Tyr Leu Arg Ser Met Arg Arg Lys Ser Phe Arg Ser Gly Ser Leu 305	310	315	1138
CGG TCA CTA AGC AAT ATA AAC AGT GAA ATG TTA TGAATAATAA GGTTCTTCA Arg Ser Leu Ser Asn Ile Asn Ser Glu Met Leu 325	330		1191
TTTCAATCCC ATCAAAATTC ACTTCACTAA CTACTCTGGC GTCAATGGAT ATTCTGTATA ATACTATCAA GTCCCTTTTC TCTTGAAAAA ATAAATTCA TATCTTCATT TTAAAAACTT AAA			1251
			1311
			1314

(2) INFORMATION FOR SEQ ID NO:4:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 331 amino acids
  - (B) TYPE: amino acid
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Met Ile Thr Leu Asn Asn Gln Asp Gln Pro Val Pro Phe Asn Ser Ser  
1 5 10 15

His Pro Asp Glu Tyr Lys Ile Ala Ala Leu Val Phe Tyr Ser Cys Ile  
20 25 30

Phe Ile Ile Gly Leu Phe Val Asn Ile Thr Ala Leu Trp Val Phe Ser  
35 40 45

Cys Thr Thr Lys Lys Arg Thr Thr Val Thr Ile Tyr Met Met Asn Val  
50 55 60

Ala Leu Val Asp Leu Ile Phe Ile Met Thr Leu Pro Phe Arg Met Phe  
65 70 75 80

Tyr Tyr Ala Lys Asp Ala Trp Pro Phe Gly Glu Tyr Phe Cys Gln Ile  
85 90 95

Ile Gly Ala Leu Thr Val Phe Tyr Pro Ser Ile Ala Leu Trp Leu Leu  
100 105 110

Ala Phe Ile Ser Ala Asp Arg Tyr Met Ala Ile Val Gln Pro Lys Tyr  
115 120 125

Ala Lys Glu Leu Lys Asn Thr Cys Lys Ala Val Leu Ala Cys Val Gly  
130 135 140

Val Trp Ile Met Thr Leu Thr Thr Thr Pro Leu Leu Leu Tyr  
145 150 155 160

Lys Asp Pro Asp Lys Asp Ser Thr Pro Ala Thr Cys Leu Lys Ile Ser  
165 170 175

Asp Ile Ile Tyr Leu Lys Ala Val Asn Val Leu Asn Leu Thr Arg Leu  
180 185 190

Thr Phe Phe Leu Ile Pro Leu Phe Ile Met Ile Gly Cys Tyr Leu  
195 200 205

Val Ile Ile His Asn Leu Leu His Gly Arg Thr Ser Lys Leu Lys Pro  
210 215 220

Lys Val Lys Glu Lys Ser Ile Arg Ile Ile Thr Leu Leu Val Gln  
225 230 235 240

Val Leu Val Cys Phe Met Pro Phe His Ile Cys Phe Ala Phe Leu Met  
245 250 255

Leu Gly Thr Gly Glu Asn Ser Tyr Asn Pro Trp Gly Ala Phe Thr Thr  
260 265 270

Phe Leu Met Asn Leu Ser Thr Cys Leu Asp Val Ile Leu Tyr Tyr Ile  
275 280 285

Val Ser Lys Gln Phe Gln Ala Arg Val Ile Ser Val Met Leu Tyr Arg  
290 295 300

Asn Tyr Leu Arg Ser Met Arg Arg Lys Ser Phe Arg Ser Gly Ser Leu  
305 310 315 320

Arg Ser Leu Ser Asn Ile Asn Ser Glu Met Leu  
325 330

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 400 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 2..226

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: US 60/053,693
- (I) FILING DATE: 25-JUL-1997

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

G CTA CAA GGA CAG GAG AAC AGC TAT AGC CCC TGG GGA GCC TTC ACC	46
Leu Gln Gly Gln Glu Asn Ser Tyr Ser Pro Trp Gly Ala Phe Thr	
1 5 10 15	
ACC TTC CTC ATG AAC CTC AGC ACC TGT CTC GAT GTA GTC CTC TAC TAC	94
Thr Phe Leu Met Asn Leu Ser Thr Cys Leu Asp Val Val Leu Tyr Tyr	
20 25 30	
ATC GTT TCC AAA CAG TTC CAG GCT CGA GTC ATC AGC GTC ATG CTG TAC	142
Ile Val Ser Lys Gln Phe Gln Ala Arg Val Ile Ser Val Met Leu Tyr	
35 40 45	
CGC AAT TAC CTT CGC AGT GTT CGC AGA AAA AGT GTC CGA TCG GGC AGT	190
Arg Asn Tyr Leu Arg Ser Val Arg Arg Lys Ser Val Arg Ser Gly Ser	
50 55 60	
TTA CGG TCA CTT AGC AAC ATG AAC AGT GAG ATG CTT TGAGTCAGAG	236
Leu Arg Ser Leu Ser Asn Met Asn Ser Glu Met Leu	
65 70 75	
CAAGCTGCCA GTCTTCAGTC TCTTTAAAAT TCTTTCTTA TCTACTTCG GGTGAACCAG	296
CATTCTACAC TATCCAGTCC CTTCTCTAAC AAAGAGAAAAT AATAATGATG AACTTTAAAA	356
ACTTCTGCGG TATTCTGTGT ATTCTAGCCA CATGATTAAA AACT	400

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 75 amino acids

- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Leu Gln Gly Gln Glu Asn Ser Tyr Ser Pro Trp Gly Ala Phe Thr Thr  
1 5 10 15

Phe Leu Met Asn Leu Ser Thr Cys Leu Asp Val Val Leu Tyr Tyr Ile  
20 25 30

Val Ser Lys Gln Phe Gln Ala Arg Val Ile Ser Val Met Leu Tyr Arg  
35 40 45

Asn Tyr Leu Arg Ser Val Arg Arg Lys Ser Val Arg Ser Gly Ser Leu  
50 55 60

Arg Ser Leu Ser Asn Met Asn Ser Glu Met Leu  
65 70 75

(2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1549 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 85..1134

(ix) FEATURE:

- (A) NAME/KEY: misc\_feature
- (B) LOCATION: 661
- (D) OTHER INFORMATION: /note= "residue 661 may be G or C; actually found to be A"

(ix) FEATURE:

- (A) NAME/KEY: misc\_feature
- (B) LOCATION: 1462
- (D) OTHER INFORMATION: /note= ""residue 1462 may be G or T""

(ix) FEATURE:

- (A) NAME/KEY: misc\_feature
- (B) LOCATION: 1473
- (D) OTHER INFORMATION: /note= ""residue 1473 may be A or C""

(ix) FEATURE:

- (A) NAME/KEY: misc\_feature
- (B) LOCATION: 1490

(D) OTHER INFORMATION: /note= ""residue 1490 may be A, C, T, or G""

(ix) FEATURE:

- (A) NAME/KEY: misc\_feature  
(B) LOCATION: 1495

(D) OTHER INFORMATION: /note= ""residue 1495 may be A or T""

(x) PUBLICATION INFORMATION:

- (H) DOCUMENT NUMBER: US 60/053,693  
(I) FILING DATE: 25-JUL-1997

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

ATTCGGCTTA CTCACTATAG GGCTCGAGCG GCGCCCGGGC AGGTCAAGAC TGCTCCTCTC	60
TGCCGACTAC AACAGATTGG AGCC ATG GCT TTG GAA CAG AAC CAG TCA ACA Met Ala Leu Glu Gln Asn Gln Ser Thr	111
1 5	
GAT TAT TAT TAT GAG GAA AAT GAA ATG AAC GGC ACT TAT GAC TAC AGT Asp Tyr Tyr Tyr Glu Glu Asn Glu Met Asn Gly Thr Tyr Asp Tyr Ser	159
10 15 20 25	
CAA TAT GAA CTG ATC TGT ATC AAA GAA GAT GTC AGA GAA TTT GCA AAA Gln Tyr Glu Leu Ile Cys Ile Lys Glu Asp Val Arg Glu Phe Ala Lys	207
30 35 40	
GTT TTC CTC CCT GTA TTC CTC ACA ATA GTT TTC GTC ATT GGA CTT GCA Val Phe Leu Pro Val Phe Leu Thr Ile Val Phe Val Ile Gly Leu Ala	255
45 50 55 .	
GGC AAT TCC ATG GTA GTG GCA ATT TAT GCC TAT TAC AAG AAA CAG AGA Gly Asn Ser Met Val Val Ala Ile Tyr Ala Tyr Tyr Lys Lys Gln Arg	303
60 65 70	
ACC AAA ACA GAT GTG TAC ATC CTG AAT TTG GCT GTA GCA GAT TTA CTC Thr Lys Thr Asp Val Tyr Ile Leu Asn Leu Ala Val Ala Asp Leu Leu	351
75 80 85	
CTT CTA TTC ACT CTG CCT TTT TGG GCT GTT AAT GCA GTT CAT GGG TGG Leu Leu Phe Thr Leu Pro Phe Trp Ala Val Asn Ala Val His Gly Trp	399
90 95 100 105	
GTT TTA GGG AAA ATA ATG TGC AAA ATA ACT TCA GCC TTG TAC ACA CTA Val Leu Gly Lys Ile Met Cys Lys Ile Thr Ser Ala Leu Tyr Thr Leu	447
110 115 120	
AAC TTT GTC TCT GGA ATG CAG TTT CTG GCT TGT ATC AGC ATA GAC AGA Asn Phe Val Ser Gly Met Gln Phe Leu Ala Cys Ile Ser Ile Asp Arg	495
125 130 135	
TAT GTG GCA GTA ACT AAA GTC CCC AGC CAA TCA GGA GTG GGA AAA CCA Tyr Val Ala Val Thr Lys Val Pro Ser Gln Ser Gly Val Gly Lys Pro	543
140 145 150	
TGC TGG ATC ATC TGT TCC TGT GTC TGG ATG GCT GCC ATC TTG CTG AGC	591



AATTTTGTAT CTTGGTTGCA GTGGTGCTTA TACCAATCTA CACCAGTGAT AAAATGACCC	1474
AGAACTATTT CCCCCCTTGT TCCCATTCA ATTCCTGGT TTTGACATTA TAGTATAATT	1534
<b>ATGTTAGATG GAACC</b>	<b>1549</b>

(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:

  - (A) LENGTH: 350 amino acids
  - (B) TYPE: amino acid
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Met	Ala	Leu	Glu	Gln	Asn	Gln	Ser	Thr	Asp	Tyr	Tyr	Tyr	Glu	Glu	Asn
1					5					10				15	
Glu Met Asn Gly Thr Tyr Asp Tyr Ser Gln Tyr Glu Leu Ile Cys Ile															
					20					25				30	
Lys	Glu	Asp	Val	Arg	Glu	Phe	Ala	Lys	Val	Phe	Leu	Pro	Val	Phe	Leu
								35		40				45	
Thr	Ile	Val	Phe	Val	Ile	Gly	Leu	Ala	Gly	Asn	Ser	Met	Val	Val	Ala
							50		55				60		
Ile	Tyr	Ala	Tyr	Tyr	Lys	Lys	Gln	Arg	Thr	Lys	Thr	Asp	Val	Tyr	Ile
					65		70			75				80	
Leu	Asn	Leu	Ala	Val	Ala	Asp	Leu	Leu	Leu	Leu	Phe	Thr	Leu	Pro	Phe
						85				90				95	
Trp	Ala	Val	Asn	Ala	Val	His	Gly	Trp	Val	Leu	Gly	Lys	Ile	Met	Cys
						100			105				110		
Lys	Ile	Thr	Ser	Ala	Leu	Tyr	Thr	Leu	Asn	Phe	Val	Ser	Gly	Met	Gln
						115			120				125		
Phe	Leu	Ala	Cys	Ile	Ser	Ile	Asp	Arg	Tyr	Val	Ala	Val	Thr	Lys	Val
						130			135				140		
Pro	Ser	Gln	Ser	Gly	Val	Gly	Lys	Pro	Cys	Trp	Ile	Ile	Cys	Ser	Cys
						145			150				155		160
Val	Trp	Met	Ala	Ala	Ile	Leu	Leu	Ser	Ile	Pro	Gln	Leu	Val	Phe	Tyr
						165				170				175	
Thr	Val	Asn	Asp	Asn	Ala	Arg	Cys	Ile	Pro	Ile	Phe	Pro	Arg	Tyr	Leu
							180			185				190	
Arg	Thr	Ser	Met	Lys	Ala	Leu	Ile	Gln	Met	Leu	Glu	Ile	Cys	Ile	Gly
							195			200				205	

Phe Val Val Pro Phe Leu Ile Met Gly Val Cys Tyr Phe Ile Thr Ala  
 210 215 220  
 Arg Thr Leu Met Lys Met Pro Asn Ile Lys Ile Ser Arg Pro Leu Lys  
 225 230 235 240  
 Val Leu Leu Thr Val Val Ile Val Phe Ile Val Thr Gln Leu Pro Tyr  
 245 250 255  
 Asn Ile Val Lys Phe Cys Arg Ala Ile Asp Ile Ile Tyr Ser Leu Ile  
 260 265 270  
 Thr Ser Cys Asn Met Ser Lys Arg Met Asp Ile Ala Ile Gln Val Thr  
 275 280 285  
 Glu Ser Ile Ala Leu Phe His Ser Cys Leu Asn Pro Ile Leu Tyr Val  
 290 295 300  
 Phe Met Gly Ala Ser Phe Lys Asn Tyr Val Met Lys Val Ala Lys Lys  
 305 310 315 320  
 Tyr Gly Ser Trp Arg Arg Gln Arg Gln Ser Val Glu Glu Phe Pro Phe  
 325 330 335  
 Asp Ser Glu Gly Pro Thr Glu Pro Thr Ser Thr Phe Ser Ile  
 340 345 350

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 1273 base pairs
  - (B) TYPE: nucleic acid
  - (C) STRANDEDNESS: single
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: cDNA
- (ix) FEATURE:
  - (A) NAME/KEY: CDS
  - (B) LOCATION: 429..1238
- (x) PUBLICATION INFORMATION:
  - (H) DOCUMENT NUMBER: US 60/053,693
  - (I) FILING DATE: 25-JUL-1997

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

GATGCATGCT CGAGCGGCCG CCAGTGTGAT GGATATCTGC AGAATTCCGC TTACTCACTA	60
TAGGGCTCGA GCGGCCGCCG GGGCAGGTCC CTCCAACAAG ACGCAGCAC GAGACACCAC	120
CTACCTAACCA CAGGCGACTC TGAGCACTCT CTCTCTGGGA CTGGGCAGAG CGGCAAACGG	180
TCACCTCTCA GACAGCCTTT GACAGACAGG AGGTTCTACA TACCATGGGA GCCAGCCTGC	240
TGTAAGATGG CCACCCCTGAG CAATCACAAAC CAGCTTGATC TTTCTAATGG CTCACACCCA	300

GAGGAATACA AAATCGCAGC CCTAGTCCTTC TACAGCTGCA TCTTCCTGAT TGGGCTGTTT	360
GTAAATGTCA CTGCCGTTGTG GGTTTCAGC TGTACGACCA AGAAAAGAAC ACAGTGACCA	420
TCTACATG ATG AAC GTT GCA CTA CTG GAC CTC GTA TTT ATA CTC AGT CTG Met Asn Val Ala Leu Leu Asp Leu Val Phe Ile Leu Ser Leu	470
1                   5                   10	
CCC TTT CGG ATG TTT TAC TAT GCA AAA GGC GAG TGG CCA TTT GGA GAG Pro Phe Arg Met Phe Tyr Tyr Ala Lys Gly Glu Trp Pro Phe Gly Glu	518
15                 20                 25                 30	
TAC TTC TGC CAC ATT CTT GGG GCC CTG GTG GTG TTT TAC CCA AGC CTC Tyr Phe Cys His Ile Leu Gly Ala Leu Val Val Phe Tyr Pro Ser Leu	566
35                 40                 45	
GCT CTG TGG CTT CTT GCT ATT AGT GCT GAC AGA TAC ATG GCC ATC Ala Leu Trp Leu Leu Ala Phe Ile Ser Ala Asp Arg Tyr Met Ala Ile	614
50                 55                 60	
GTA CAG CCA AAA TAT GCC AAG GAG CTG AAG AAC ACC GGC AAG GCC GTG Val Gln Pro Lys Tyr Ala Lys Glu Leu Lys Asn Thr Gly Lys Ala Val	662
65                 70                 75	
CTT GCG TGT GGG GGG GTC TGG GTA ATG ACC CTG ACC ACC ACT GTC CCC Leu Ala Cys Gly Gly Val Trp Val Met Thr Leu Thr Thr Thr Val Pro	710
80                 85                 90	
CTG CTA CTG CTC TAC GAA GAC CCA GAC AAT GCC TCC TCC CCG GCC ACC Leu Leu Leu Tyr Glu Asp Pro Asp Asn Ala Ser Ser Pro Ala Thr	758
95                 100                 105                 110	
TGC CTG AAG ATC TCC GAC ATC ACC CAC TTA AAA GCT GTC AAC GTG CTC Cys Leu Lys Ile Ser Asp Ile Thr His Leu Lys Ala Val Asn Val Leu	806
115                 120                 125	
AAC TTC ACG CGA CTC ATA TTT TTC CTG ATC CCT TTG TTC ATC ATG Asn Phe Thr Arg Leu Ile Phe Phe Phe Leu Ile Pro Leu Phe Ile Met	854
130                 135                 140	
ATC GGG TGC TAC GTG GTC ATC ATT CAC AGT CTC CTC CGA GGG CAG ACG Ile Gly Cys Tyr Val Val Ile Ile His Ser Leu Leu Arg Gly Gln Thr	902
145                 150                 155	
TCT AAG CTG AAG CCC AAG GTC AAG GAG AAG TCC ATA CGG ATC ATC ATG Ser Lys Leu Lys Pro Lys Val Lys Glu Lys Ser Ile Arg Ile Ile Met	950
160                 165                 170	
ACC CTC CTG CTG CAG GTG CTC GTC TGC TTC GTG CCC TTC CAC ATC TGC Thr Leu Leu Leu Gln Val Leu Val Cys Phe Val Pro Phe His Ile Cys	998
175                 180                 185                 190	
TTT GCC GTC CTG ATG CTA CAA GGA CAG GAG AAC AGC TAT AGC CCC TGG Phe Ala Val Leu Met Leu Gln Gly Gln Glu Asn Ser Tyr Ser Pro Trp	1046
195                 200                 205	
GGA GCC TTC ACC ACC TTC CTC ATG AAC CTC AGC ACC TGT CTC GAT GTA Gly Ala Phe Thr Thr Phe Leu Met Asn Leu Ser Thr Cys Leu Asp Val	1094

210	215	220	
GTC CTC TAC TAC ATC GTT TCC AAA CAG TTC CAG GCT CGA GTC ATC AGC Val Leu Tyr Tyr Ile Val Ser Lys Gln Phe Gln Ala Arg Val Ile Ser			1142
225	230	235	
GTC ATG CTG TAC CGC AAT TAC CTT CGC AGT GTT CGC AGA AAA AGT GTC Val Met Leu Tyr Arg Asn Tyr Leu Arg Ser Val Arg Arg Lys Ser Val			1190
240	245	250	
CGA TCG GGC AGT TTA CGG TCA CTT AGC AAC ATG AAC AGT GAG ATG CTT Arg Ser Gly Ser Leu Arg Ser Leu Ser Asn Met Asn Ser Glu Met Leu			1238
255	260	265	270
TGAGTCAGAG CAAGCTGCCA GTCTTCAGTC TCTTT			
1273			

(2) INFORMATION FOR SEQ ID NO:10:

- (i) SEQUENCE CHARACTERISTICS:
  - (A) LENGTH: 270 amino acids
  - (B) TYPE: amino acid
  - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Met Asn Val Ala Leu Leu Asp Leu Val Phe Ile Leu Ser Leu Pro Phe			
1	5	10	15
Arg Met Phe Tyr Tyr Ala Lys Gly Glu Trp Pro Phe Gly Glu Tyr Phe			
20	25	30	
Cys His Ile Leu Gly Ala Leu Val Val Phe Tyr Pro Ser Leu Ala Leu			
35	40	45	
Trp Leu Leu Ala Phe Ile Ser Ala Asp Arg Tyr Met Ala Ile Val Gln			
50	55	60	
Pro Lys Tyr Ala Lys Glu Leu Lys Asn Thr Gly Lys Ala Val Leu Ala			
65	70	75	80
Cys Gly Gly Val Trp Val Met Thr Leu Thr Thr Val Pro Leu Leu			
85	90	95	
Leu Leu Tyr Glu Asp Pro Asp Asn Ala Ser Ser Pro Ala Thr Cys Leu			
100	105	110	
Lys Ile Ser Asp Ile Thr His Leu Lys Ala Val Asn Val Leu Asn Phe			
115	120	125	
Thr Arg Leu Ile Phe Phe Leu Ile Pro Leu Phe Ile Met Ile Gly			
130	135	140	
Cys Tyr Val Val Ile Ile His Ser Leu Leu Arg Gly Gln Thr Ser Lys			
145	150	155	160

Leu Lys Pro Lys Val Lys Glu Lys Ser Ile Arg Ile Ile Met Thr Leu  
165 170 175

Leu Leu Gln Val Leu Val Cys Phe Val Pro Phe His Ile Cys Phe Ala  
180 185 190

Val Leu Met Leu Gln Gly Gln Glu Asn Ser Tyr Ser Pro Trp Gly Ala  
195 200 205

Phe Thr Thr Phe Leu Met Asn Leu Ser Thr Cys Leu Asp Val Val Leu  
210 215 220

Tyr Tyr Ile Val Ser Lys Gln Phe Gln Ala Arg Val Ile Ser Val Met  
225 230 235 240

Leu Tyr Arg Asn Tyr Leu Arg Ser Val Arg Arg Lys Ser Val Arg Ser  
245 250 255

Gly Ser Leu Arg Ser Leu Ser Asn Met Asn Ser Glu Met Leu  
260 265 270